Truth Efficiencies

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Again

- Truth level efficiencies for ttbar and Z' m = 0.7, 1, 1.5 TeV
- Cut on $|\eta| < 2.5$ and p_T
- Leptons: $p_T > 25$ GeV
- Jets have for A = {25, 40}, B = {15, 25} either:
  - 4 jets > A GeV
  - 3 jets > A GeV, 1 jet > B GeV
- Many bugs in the last set (4th parton not selected correctly, McAtNlo very different to Pythia, remove dilepton events)

Leptons

		tt	0.7 TeV	1 TeV	1.5 TeV
p_T > 25 GeV	lepton	76%	81%	84%	88%
	neutrino	84%	85%	87%	91%
$\|\eta\|$ < 2.5	lepton	91%	88%	91%	93%
	neutrino	92%	88%	91%	93%
p_T > 25 GeV & $\|\eta\|$ < 2.5	**lepton**	**72%**	**73%**	**78%**	**84%**
	neutrin	**78%**	**76%**	**82%**	**86%**

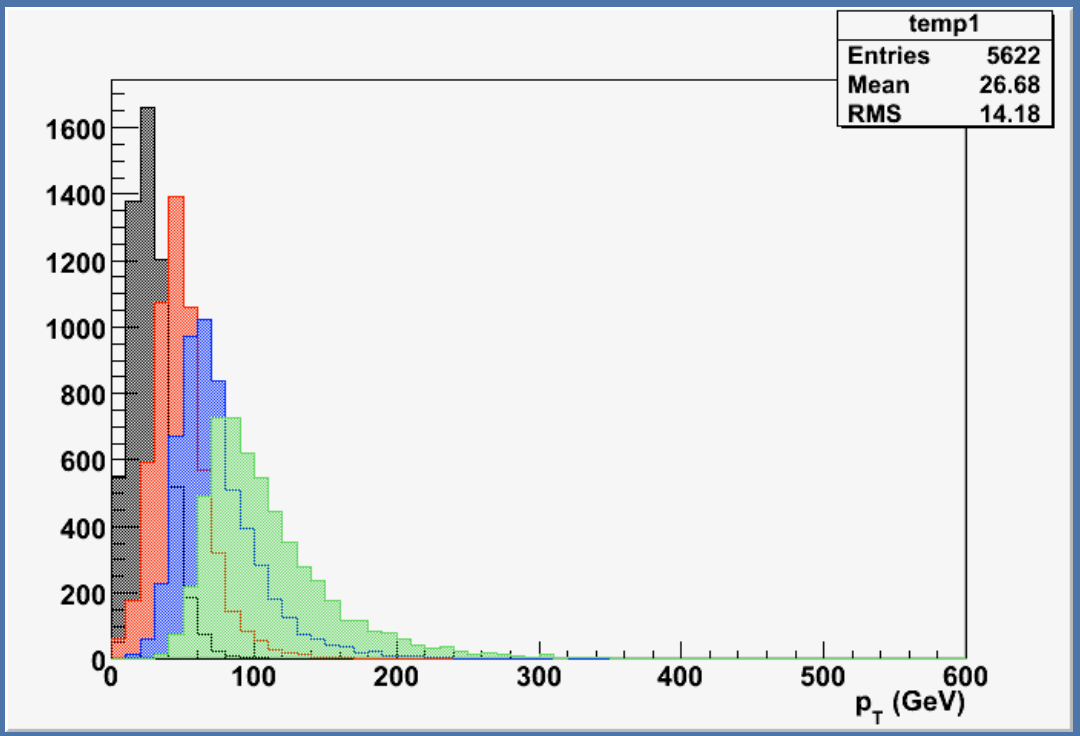
improves with increasing mass

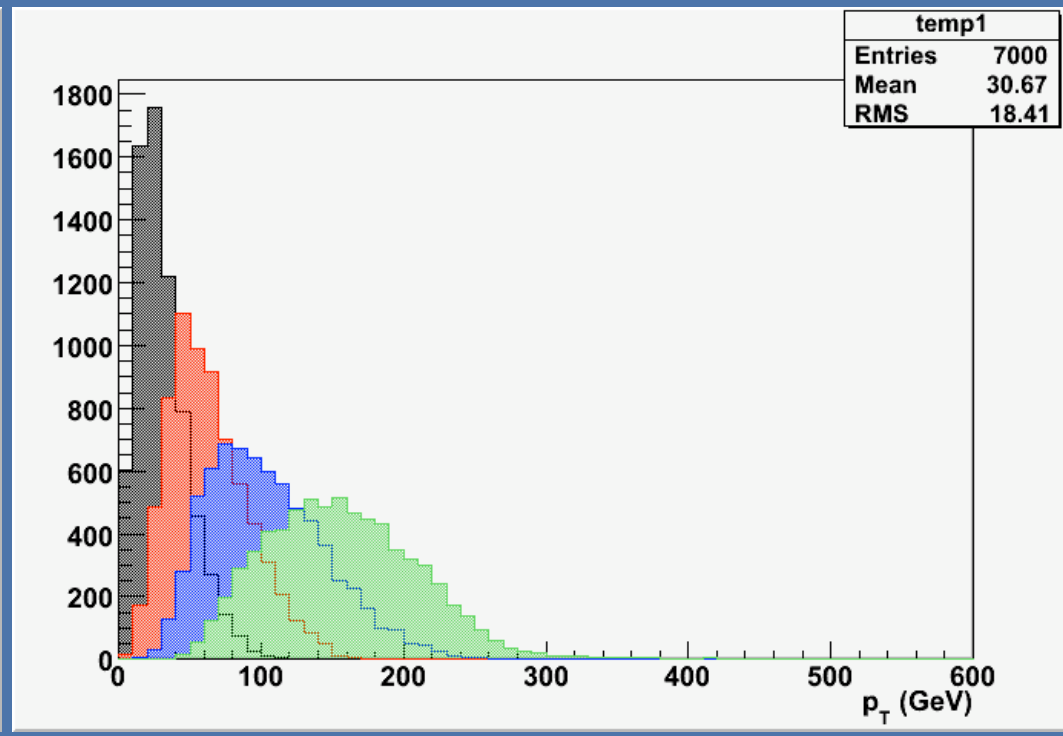
Neutrinos have higher p_T than leptons

Partons

(|η| < 2.5, 0.4 between partons)

	tt	0.7 TeV	1 TeV	1.5 TeV
η	72%	73%	79%	86%
isolation	97%	98%	95%	77%
all > 40 GeV	14% (12%)	25% (21%)	37% (32%)	52% (34%)
all > 25 GeV	51% (39%)	55% (43%)	62% (50%)	71% (47%)
3 > 40 GeV, 1 > 20 GeV	49% (39%)	58% (45%)	65% (53%)	74% (49%)
3 > 25 GeV, 1 > 15 GeV	77% (57%)	78% (59%)	80% (62%)	84% (54%)


temp1
Entries 5622
Mean 26.68
RMS 14.18
p_T (GeV)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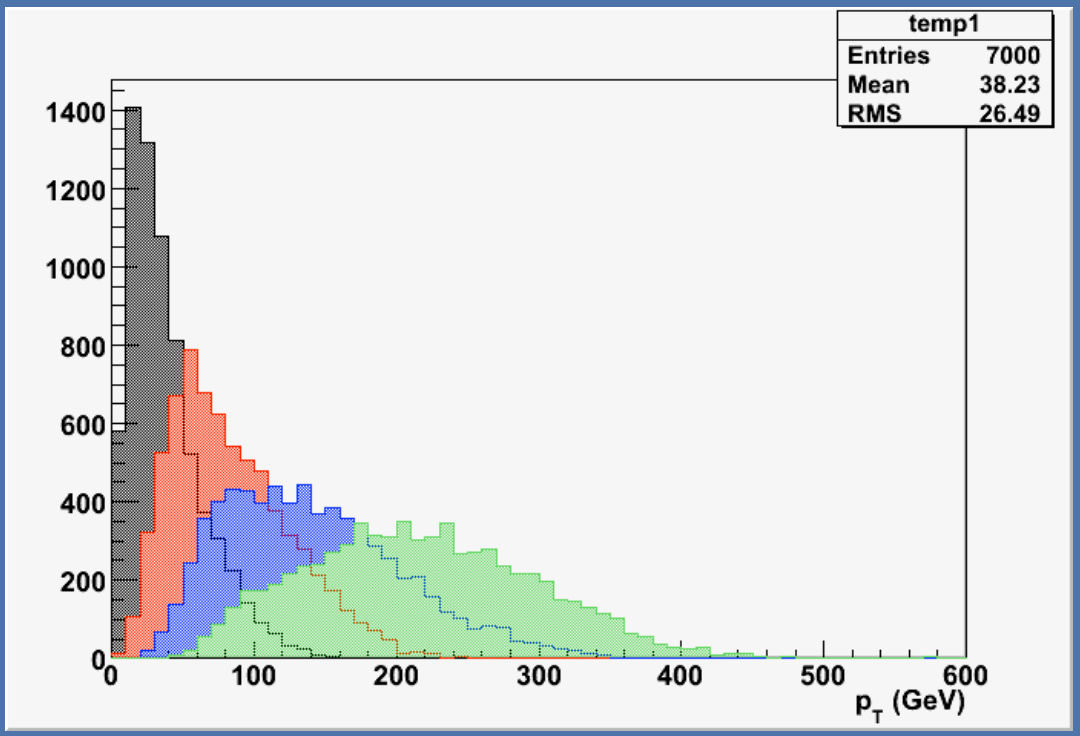
Entries 7000
Mean 30.67
RMS 18.41
p_T (GeV)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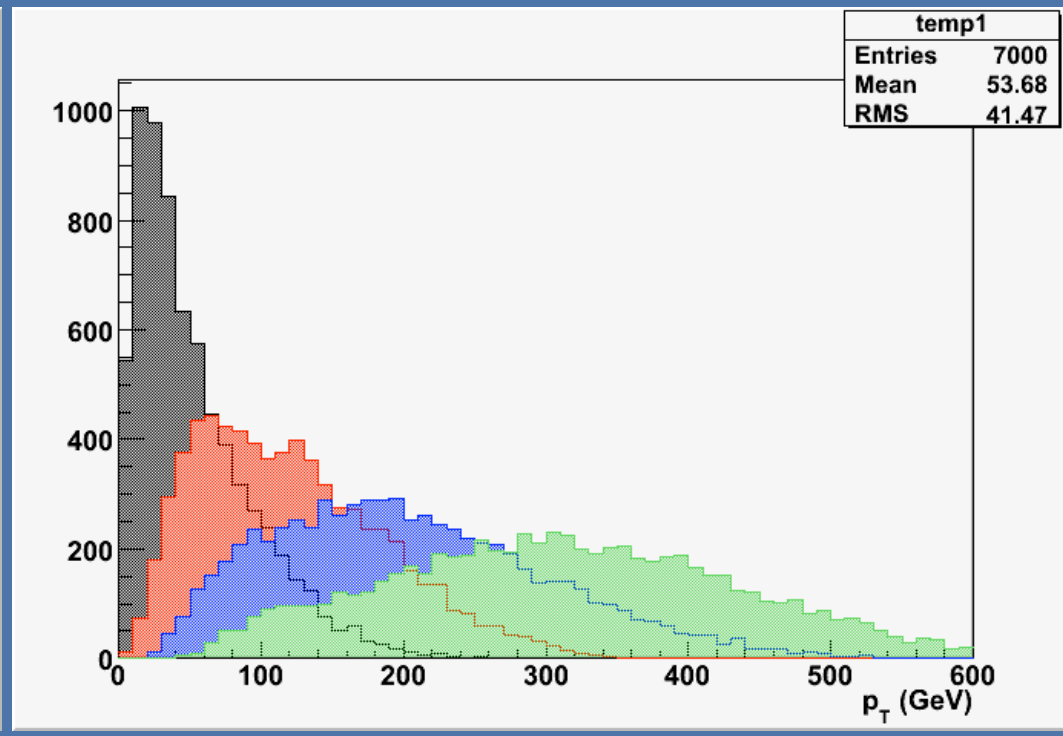
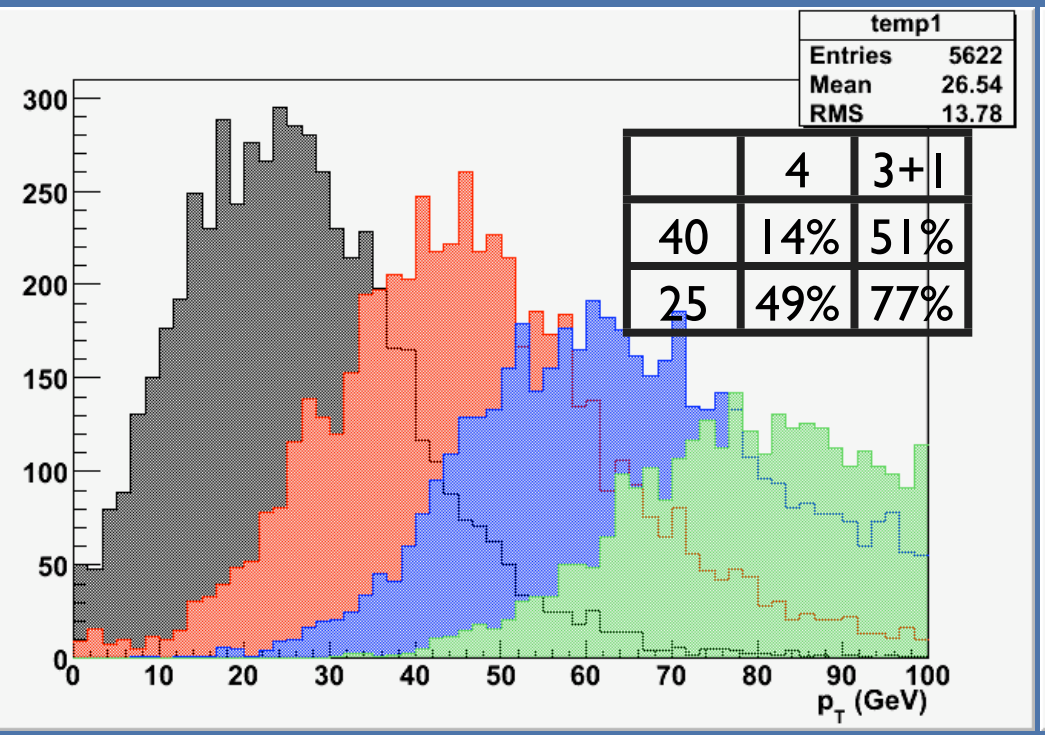
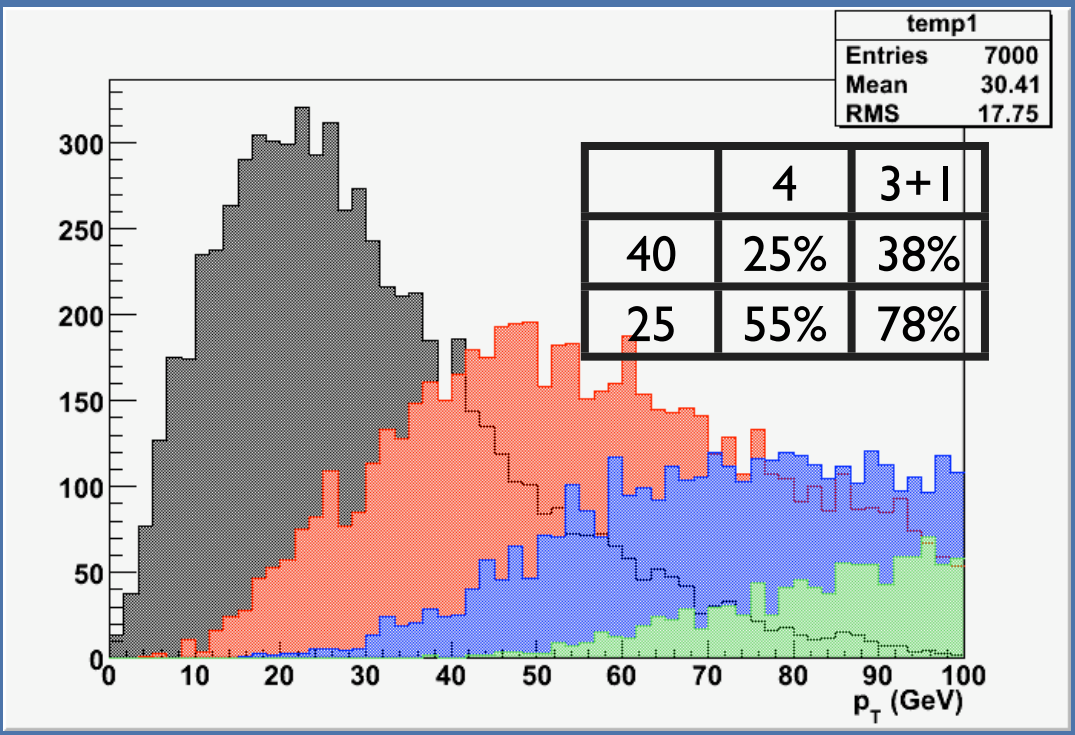
Entries 7000
Mean 38.23
RMS 26.49
p_T (GeV)

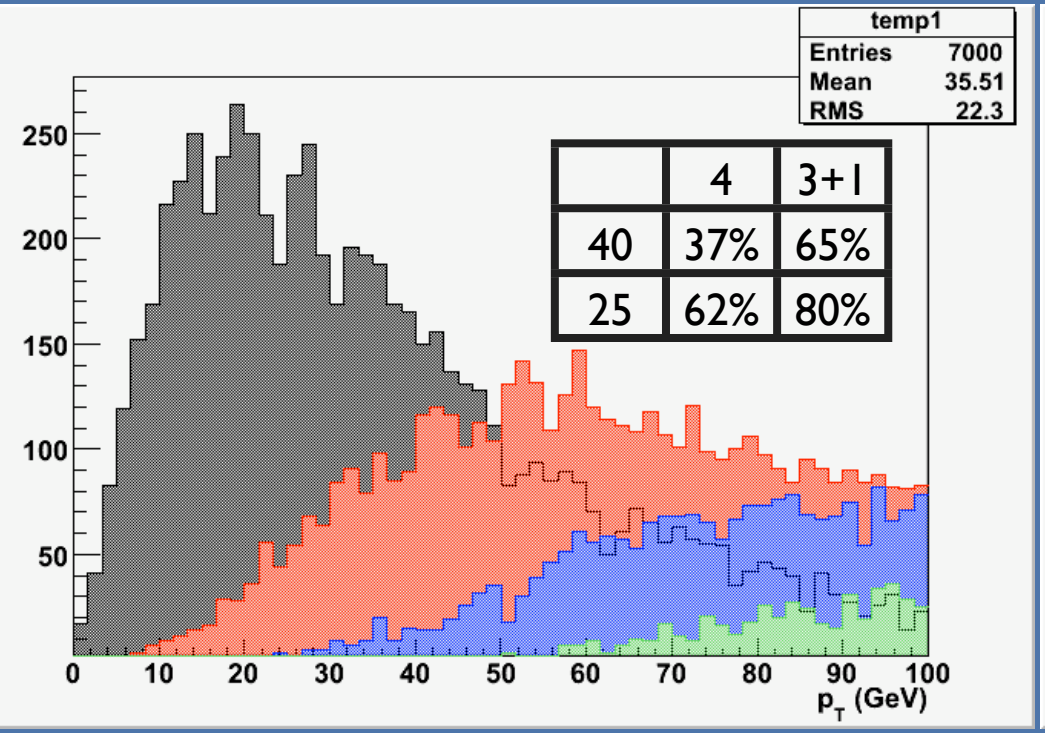

temp1
Entries 7000
Mean 53.68
RMS 41.47
p_T (GeV)



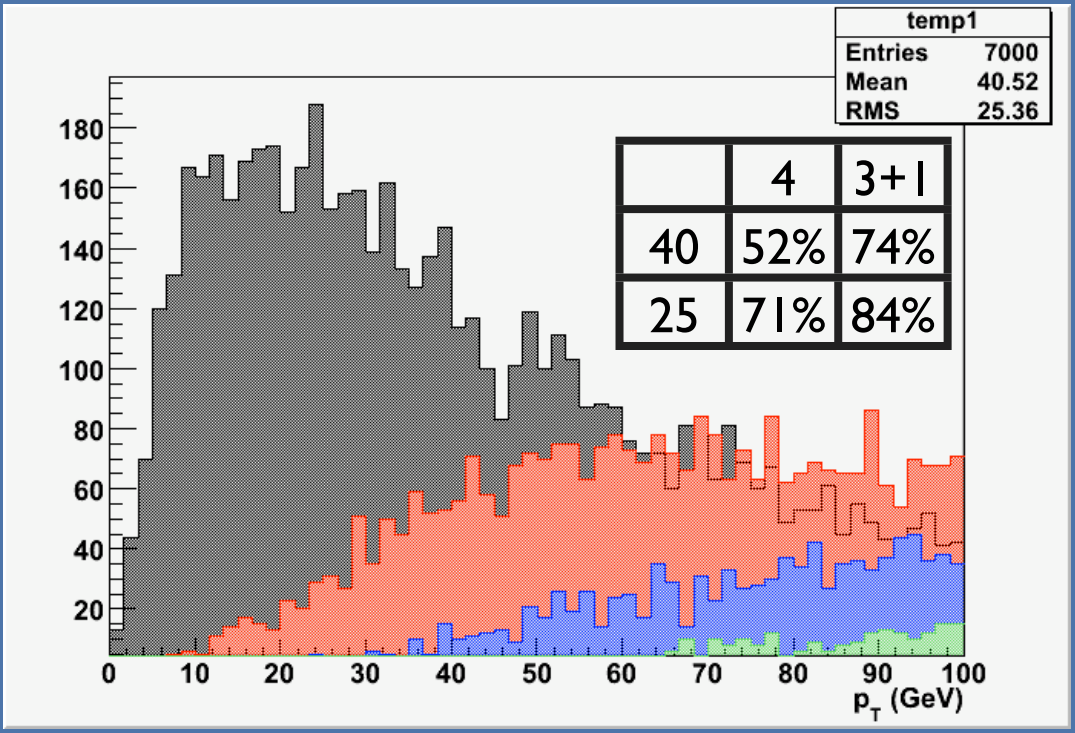
	4	3+1
40	14%	51%
25	49%	77%



	4	3+1
40	25%	38%
25	55%	78%



	4	3+1
40	37%	65%
25	62%	80%



	4	3+1
40	52%	74%
25	71%	84%

Leptons + Jets

	Our cuts		Commissioning jets	
		isolation		isolation
tt	35%	33%	23%	22%
0.7 TeV	35%	34%	38%	
1 TeV	52%		49%	
1.5 TeV	63%		60%	

Commissioning analysis twiki:
http://tinyurl.com/2h2z4r

Conclusion

- All efficiencies increase with increasing mass
- Little correlation between different cuts
- We need a good choice of jet cuts
- Next: use ATLFAST to start looking at reconstructed data